



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,717	06/12/2006	Shunsuke Toyoda	JFE-06-1127	7167
35811 7590 07/08/2009 IP GROUP OF DLA PIPER LLP (US) ONE LIBERTY PLACE 1650 MARKET ST, SUITE 4900 PHILADELPHIA, PA 19103				
EXAMINER VELASQUEZ, VANESSA T				
ART UNIT 1793		PAPER NUMBER		
NOTIFICATION DATE 07/08/2009		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pto.phil@dlapiper.com

# Office Action Summary

**Application No.**

10/582,717

**Applicant(s)**

TOYODA ET AL.

**Examiner**

Vanessa Velasquez

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 6-8 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8 and 11-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB008)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 11, 2009 has been entered.

### ***Status of Claims***

Claims 4, 5, 9, and 10 are canceled. Independent claims 1, 6, 11, and 14 are amended. Currently, claims 1-3, 6-8, 11-16 are pending and presented for examination on the merits.

### ***Status of Previous Claim Rejections under 35 USC § 112***

The previous rejection of claims 11-16 under the first paragraph of 35 U.S.C. 112 is withdrawn in view of the amendments to the claims.

### ***Duplicate Claims Warning***

The following chart shows pairings of claims with their duplicates:

Claim	Duplicate
1	11
2	12
3	13
6	14
7	15
8	16

Applicant is advised that should any of the above claims 1-3 and 6-8 be found allowable, claims 11-13 and 14-16 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims 1, 2, 6, 7, 11, 12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshii et al. (US 2002/0079028 A1).

Regarding claims 1, 6, 11, and 14, Yoshii et al. teach a steel sheet possessing sufficient formability (p. 2, para. [0020]; p. 11, para. [0135]) and having the following chemical composition in percent by mass (p. 2, para. [0026]-[0036]):

Element	Claims 1 & 11	Claims 6 & 14	Yoshii et al. US 2002/0079028
C	0.18 - 0.29	about 0.18 - 0.29	0.03 - 0.30
Si	0.06 - 0.45	about 0.06 - 0.45	0 - 0.30
Mn	0.91 - 1.85	about 0.91 - 1.85	0.05 - 1.5
P	0 - 0.019	about 0 - 0.019	0 - 0.05
S	0 - 0.0029	about 0 - 0.0029	0 - 0.02
Al	0.015 - 0.075	about 0.015 - 0.075	0 - 0.10
N	0 - 0.0049	about 0 - 0.0049	0.0040 - 0.0200
O	0 - 0.0049	about 0 - 0.0049	Not taught
B	0.0001 - 0.0029	about 0.0001 - 0.0029	0 - 0.003
Nb	0.001 - 0.019	about 0.001 - 0.019	0 - 0.030
Ti	0.001 - 0.029	about 0.001 - 0.029	0 - 0.030
Cr	0.001 - 0.195	about 0.001 - 0.195	0 - 2.0
Mo	0.001 - 0.195	about 0.001 - 0.195	0.02 - 0.50

The balance of the steel alloy is iron and inevitable impurities (p. 2, para. [0037]). With regard to oxygen content, Yoshii et al. do not teach that oxygen is present; therefore, it will be regarded as being absent (i.e., 0 mass %) from the alloy. The microstructure of the steel does not exceed 90% by volume of ferrite, and the ferrite grain size is no more than 15 micrometers (p. 2, para. [0037]). Note that the ranges disclosed by the prior art overlap the claimed ranges, and that this overlap is sufficient to establish a *prima facie* case of obviousness (MPEP § 2144.05).

Yoshii et al. do not explicitly teach that the steel of their invention has excellent fatigue endurance after quenching, low temperature toughness, resistance for hydrogen embrittlement, and a fatigue endurance of at least 500 MPa after quenching. However, it has been well established that “when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent” (MPEP § 2112.01). In the present case, the chemical composition, microstructure, and grain size of the steel of Yoshii et al. are substantially identical to those of the claimed steel. Thus, any claimed properties (e.g., excellent fatigue endurance after quenching, low temperature toughness, resistance for hydrogen embrittlement, a fatigue endurance of at least 500 MPa after quenching) would be expected by one of ordinary skill in the art to be inherent to the steel of the prior art because of its substantially identical composition and microstructure.

Yoshii et al. do not teach equations relating to the carbon equivalent and multiplying factors as claimed. However, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art (*In*

*re Cooper and Foley*, 1943 C.D. 357, 553 O.G. 177, 57 USPQ 117; *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77; and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75). In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those of ordinary skill in the art (*In re Austin, et al.*, 149 USPQ 685, 688).

With regard to the limitation "for structural parts of automobiles," this limitation will not be accorded weight in determining the patentability of the claim because it amounts to the intended or future use of the steel product (MPEP § 2111.02, Section II).

Regarding claims 2, 7, 12, and 15, the steel of Yoshii et al. further comprises the following elements (p. 2, para. [0033], [0036]):

Element	Claims 2, 7, 12, 15	Yoshii et al. US 2002/0079028
Cu	0.001-0.175	0 - 1.0
Ni	0.001-0.145	0 - 1.0
V	0.001-0.029	0.02 - 0.20

5. Claims 3, 8, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshii et al. (US 2002/0079028 A1), as applied to claims 1, 6, 11, and 14 above, and further in view of Fujita et al. (US 2003/0116238 A1).

Yoshii et al. do not teach calcium as a component of the alloy therein. US 2003/0116238 A1 issued to Fujita et al. is drawn to a steel having a substantially identical chemical composition as that of Yoshii et al. The steel of Fujita et al., however, contains 0.0001-0.5 mass percent calcium, which controls the formation of inclusions and enhances hot workability (p. 7, para. [0139]). It would have been obvious to one of

ordinary skill in the art to have incorporated calcium in the amount recommended by Fujita et al. into the steel of Yoshii et al. in order to increase its hot workability. Because the method of manufacturing the steel of Yoshii et al. primarily consists of hot-rolling and coiling at elevated temperatures, it would be desirable to increase the steel's hot workability in order to facilitate the rolling and coiling steps.

6. Claims 1-3, 6-8, and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 2003/0116238 A1).

Regarding claims 1, 6, 11, and 14, Fujita et al. teach a steel for use in components of an automobile (p. 1, para. [0001]). The steel has good formability and comprises the following composition in percent by mass (p. 2, para. [0032]-[0058]):

Element	Claims 1 & 11	Claims 6 & 14	Fujita et al. US 2003/0116238
C	0.18 - 0.29	about 0.18 - 0.29	0.0005 - 0.30
Si	0.06 - 0.45	about 0.06 - 0.45	0.001 - 2.0
Mn	0.91 - 1.85	about 0.91 - 1.85	0.01 - 3.0
P	0 - 0.019	about 0 - 0.019	0.001 - 0.20
S	0 - 0.0029	about 0 - 0.0029	0.0001 - 0.03
Al	0.015 - 0.075	about 0.015 - 0.075	0.001 - 0.5
N	0 - 0.0049	about 0 - 0.0049	0.0001 - 0.03
O	0 - 0.0049	about 0 - 0.0049	Not taught
B	0.0001 - 0.0029	about 0.0001 - 0.0029	0.0001 - 0.01
Nb	0.001 - 0.019	about 0.001 - 0.019	0.001 - 0.5
Ti	0.001 - 0.029	about 0.001 - 0.029	0.001 - 0.5
Cr	0.001 - 0.195	about 0.001 - 0.195	0.001 - 1.5
Mo	0.001 - 0.195	about 0.001 - 0.195	0.001 - 1.5

The balance of the steel alloy is iron and inevitable impurities (p. 2, para. [0038]). With regard to oxygen content, Fujita et al. do not teach that oxygen is present; therefore, it will be regarded as being absent (i.e., 0 mass %) from the alloy. The microstructure



comprises a minimum of 50% ferrite by area, and the ferritic grains range in size from 0.1 micron to 200 microns (p. 2, para. [0029]). Note that area percentage is approximately equal to volume percentage (p. 7, para. [0146]). The ranges disclosed by the prior art overlap the claimed ranges, and that this overlap is sufficient to establish a *prima facie* case of obviousness (MPEP § 2144.05).

Fujita et al. do not explicitly teach that the steel of their invention has excellent fatigue endurance after quenching, low temperature toughness, resistance for hydrogen embrittlement, and a fatigue endurance of at least 500 MPa after quenching, and do not teach equations relating to the carbon equivalent and multiplying factors as claimed. These differences do not result in a patentable distinction between Fujita et al. and the claimed invention for the same reasons as stated in item no. 4 supra.

Regarding claims 2, 3, 7, 8, 12, 13, 15, and 16, the steel of Fujita et al. further comprises the following elements (p. 2, para. [0032]-[0058]):

Element	Claims 2, 7, 12, 15	Fujita et al. US 2003/0116238
Cu	0.001-0.175	0.001 - 1.5
Ni	0.001-0.145	0.001 - 1.5
V	0.001-0.029	0.001 - 0.5

Element	Claims 3, 8, 13, 16	Fujita et al. US 2003/0116238
Ca	0.001-0.029	0.0001 - 0.5

***Response to Arguments***

7. Applicant's arguments have been considered but are moot in view of the new grounds of rejection necessitated by amendment.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Velasquez whose telephone number is 571-270-3587. The examiner can normally be reached on Monday-Friday 9:00 AM-6:00 PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached at 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Wyszomierski/  
Primary Examiner  
Art Unit 1793

/Vanessa Velasquez/  
Examiner, Art Unit 1793